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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,208	07/12/2000	JOHANN ENGELHARDT	293.000218	7902

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EXAMINER	
NGUYEN, THONG Q	
ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/600,208

Applicant(s)

ENGELHARDT ET AL.

Examiner

Thong Q. Nguyen

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2006 and 16 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17, 18, 22, 23, 26-29 and 32-39 is/are pending in the application.
- 4a) Of the above claim(s) 18, 26, 27 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17, 22-23, 28-29 and 32-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/29/2006 has been entered.

Response to Amendment

2. The present Office action is made in response to the amendments filed on 3/29/2006 and 6/16/2006. It is noted that since the amendment filed on 3/29/2006 did not comply with the requirement of 37 CFR 1.121 (see the Office action of 6/9/2006), thus applicant has filed a substitute amendment on 6/16/2006.

3. In the amendment of 6/16/2006, applicant has amended claims 17 and 38 and canceled claim 25. There is not any claim being added. The pending claims of the application are claims 17-18, 22-23, 26-29 and 31-39. Claims 17, 22-23, 28-29, and 32-39 are examined in this Office action, and claims 18, 26-27 and 31 have been withdrawn from further consideration as being directed to non-elected claims. See the restriction of 7/24/2001 and election of 8/9/2001. Claims 1-16, 19-21, 24-25 and 30 were canceled by the applicant.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 17, 22-23, 28, 32-33 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (U.S. Patent No. 5,184,012, of record) in view of Hara et al (Japanese reference No. 5-107037, of record) and Kappl et al (U.S. Patent No. 3,833,282).

Yamamoto discloses a scanning microscope having an illuminating system for illuminating a sample. The illuminating system as described at columns 4-6 and shown in figures 1-3 comprises a beam expanding system (30) disposed on an optical light path from a laser source (see the prior art as described at column 1 and shown in figure 5) and a scanning system (34 and 35) for scanning the illuminated light beam on the sample (A). The beam expanding system (30) as described at column 5 and shown in figure 3A will expand the illuminating diameter for matching with a particular objective lens used in the scanning microscope (see also column 6 and fig. 2 which discloses the interchangeability of different objective lenses). It is also noted that in the embodiment described at column 5 and shown in figure 3A, the beam expanding lens system is a zoom lens system in which the first lens element (41) acts as an additional lens having a fixed focal length for coupling the light from the laser source, and the second

and third lens elements (43, 42), which in combination having a variable focal length, are movable along the illuminated path. As a result, the collimation in the light beam exits from the beam expanding lens system will expand as a function of the focal length ratio between the fixed lens and the movable lenses. With regard to the feature that the scanning microscope is a so-called "multiphoton" scanning microscope, such feature is considered as an intended use of the scanning microscope because the claim does not provide any limitation for the making the scanning microscope as the so-called "multiphoton" scanning microscope.

There are two things missing from the microscope provided by Yamamoto as follow: First, Yamamoto does not disclose the kind of the light source used in the system. In other words, while Yamamoto discloses the use of a laser source, he does not explicitly discloses that the laser is in the form of a point-like light source as claimed; Second, Yamamoto does not clearly disclose that the adjustment in the beam diameter of the illuminating beam is automatically modified in response to a particular objective lens being used.

Regarding to the first feature related to the type of light source being used, it is noted that the use of an illumination system having a laser and optics wherein the laser is in the form of a point-like light source is merely that of a preferred embodiment and not critical to the invention as admitted by the applicant in the present specification in page 6, section [0022]. It is also noted that the use of an illumination system having a laser and optics wherein the laser is in the form of a

point-like light source is known to one skilled in the art as can be seen in the system provided by Hara et al. In particular, the illuminating system provided by Hara et al comprises a semiconductor laser (2) which is a point light source and optics including a collimator lens (3) disposed in front of a beam expander (7). Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize a laser in the form of a point-like light source with collimator lens as suggested by Hara et al for satisfying a particular design. The combined product as provided by Yamamoto and Hara et al does not explicitly state that the adjustment in diameter of the illuminating light in response to the change of a particular objective lens is automatically made as claimed; however, the use of an automatically mechanism for changing the illuminating light path by moving a lens in response to a change in a particular objective lens of a microscope is known to one skilled in the art as can be seen in the microscope provided by Kappl et al. In particular, Kappl et al disclose a microscope having an illuminating system, a revolver supporting a plurality of objective lenses, and a mechanism having a motor and a detecting system for automatically adjusting the position of a lens disposed in the illuminating light path in response to the change in objective lens being used. See column 3, lines 36 through column 4, lines 31. Regarding to the terms "video camera zoom" for the lens system in the present claim 23, it is noted that the claim has not provided any specific feature/limitation for the so-called "video camera zoom" and the operation of a zoom lens system, i.e., the movement of one lens element with

respect to other lens element(s) constituting the lens system, is similar in all of the optical device. In this aspect, the zoom lens system provided by Kappl et al meets the requirement of a video camera zoom lens system. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined product as provided by Yamamoto and Hara et al by using a mechanism having a motor and a detecting system as suggested by Kappl et al for the purpose of automatically adjusting the position of a lens disposed in the illuminating light path in response to the change in objective lens being used.

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Hara et al and Kappl et al as applied to claim 17 above, and further in view of Dabbs et al (U.S. Patent No. 5,054,926, of record).

The illuminating system for use with a scanning microscope wherein the illuminating system comprises a laser source and a beam expanding apparatus disposed after the laser source as provided by Yamamoto, Hara et al and Kappl et al meets all of the features recited in claim 29 except that it does not state that the illuminating system located downstream a laser source which can be in the form of an optical fiber. However, such use of light source as claimed is merely that of a preferred embodiment and no criticality has been disclosed. The support for that conclusion is found in the present specification at pages 5-6 in which applicant has stated that the light source is a laser source. Further, the use of a point light source which is provided by a laser source or a laser diode or a combination of a light source with an optical fiber is clearly known to one skilled

in the art as can be seen in the illuminating system provided by Dabbs et al. See column 4, lines 40+. Thus, absent any showing of criticality, it would have been obvious to one skilled in the art at the time the invention was made to utilize any suitable light source or a combination of available light sources and fiber as suggested by Dabbs et al in the combined product provided by Yamamoto, Hara et al and Kappl et al for the purpose of providing a light beam which is in the form of a point light source or a collimating light beam.

7. Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Hara et al and Kappl et al as applied to claim 17 above, and further in view of Kato (U.S. Patent No. 4,530,578, of record).

The illuminating system for use with a scanning microscope wherein the illuminating system comprises a laser source and a beam expanding apparatus disposed after the laser source as provided by Yamamoto, Hara et al, and Kappl et al meets all of the features recited in claims 34-36 except the feature concerning the use of an additional element in the form of a lens for the purpose of varying the light intensity. However, the use of lens systems each comprises at least one lens element and stop between a light source having fiber and a beam-expanding system for the purpose of varying the light intensity is known to one skilled in the art as can be seen in the illuminating system for use with a microscope provided by Kato. See columns 2-3 and figs. 3. It is also noted that an adjustment in the diameter of a stop for controlling the beam diameter passing through the stop is also within the level of one skilled in the art. Thus, it would

have been obvious to one skilled in the art at the time the invention was made to modify the illuminating system provided by Yamamoto, Hara et al and Kappl et al by using an additional optics between the light source and the beam-expanding system as suggested by Kato for the purpose of varying the light intensity for the purpose of adjusting the light intensity near the edge of the illuminating beam.

8. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Hara et al, Kappl et al and Kato as applied to claim 34 above with or without Kain (5,672,880).

The combined illuminating system for use with a scanning microscope wherein the illuminating system comprises a laser source, a beam expanding apparatus disposed after the laser source and an additional system between for varying the light intensity near the edge of a light beam as provided by Yamamoto, Hara et al and Kato meets all of the feature recited in claim 37 except the feature concerning the use of an additional element in the form of a holographic element for the purpose of varying the light intensity. However, the use of lens system between a light source and a beam-expanding system wherein the lens element is a holographic lens element for the purpose of varying the light intensity as claimed is merely that of a preferred embodiment and no criticality has been disclosed. The support for that conclusion is found in the present specification at page 4 in which applicant has stated that the additional element is a conventional lens element or an annular stop. Further, the use of a holographic lens element between a light source and a beam-expanding system is clearly known to one

skilled in the art as can be seen in the illuminating system provided by Kain. See columns 4-5. Thus, absent any showing of criticality, it would have been obvious to one skilled in the art at the time the invention was made to utilize any suitable optical elements including a holographic lens element as suggested by Kain between the light source and the beam-expanding system in the combined product provided by Yamamoto, Hara et al, Kappl et al and Kato for the purpose of adjusting the light intensity at the edge of the light beam.

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (U.S. Patent No. 5,184,012, of record) in view of Hara et al (Japanese reference No. 5-107037, of record), Kappl et al (U.S. Patent No. 3,833,282), and Dreessen et al (U.S. Patent No. 5,404,238, of record).

Yamamoto discloses a scanning microscope having an illuminating system for illuminating a sample. The illuminating system as described at columns 4-6 and shown in figures 1-3 comprises a beam expanding system (30) disposed on an optical light path from a laser source (see the prior art as described at column 1 and shown in figure 5) and a scanning system (34 and 35) for scanning the illuminated light beam on the sample (A). The beam expanding system (30) as described at column 5 and shown in figure 3A will expand the illuminating diameter for matching with a particular objective lens used in the scanning microscope (see also column 6 and fig. 2 which discloses the interchangeability of different objective lenses). It is also noted that in the embodiment described at column 5 and shown in figure 3A, the beam expanding lens system is a zoom

lens system in which the first lens element (41) acts as an additional lens having a fixed focal length for coupling the light from the laser source, and the second and third lens elements (43, 42), which in combination having a variable focal length, are movable along the illuminated path. As a result, the collimation in the light beam exits from the beam expanding lens system will expand as a function of the focal length ratio between the fixed lens and the movable lenses.

There are three things missing from the microscope provided by Yamamoto as follow: First, Yamamoto does not disclose the kind of the light source used in the system. In other words, while Yamamoto discloses the use of a laser source, he does not explicitly discloses that the laser is in the form of a point-like light source as claimed; Second, Yamamoto does not clearly disclose that the adjustment in the beam diameter of the illuminating beam is automatically modified in response to a particular objective lens being used; and Third, Yamamoto does not clearly disclose that that another light source is used via a coupling-in manner.

Regarding to the first feature related to the type of light source being used, it is noted that the use of an illumination system having a laser and optics wherein the laser is in the form of a point-like light source is merely that of a preferred embodiment and not critical to the invention as admitted by the applicant in the present specification in page 6, section [0022]. It is also noted that the use of an illumination system having a laser and optics wherein the laser is in the form of a point-like light source is known to one skilled in the art as can be seen in the system provided by Hara et al. In particular, the illuminating system provided by

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Hara et al comprises a semiconductor laser (2) which is a point light source and optics including a collimator lens (3) disposed in front of a beam expander (7).

Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize a laser in the form of a point-like light source with collimator lens as suggested by Hara et al for satisfying a particular design.

Regarding to the second feature related to the automatically adjustment in diameter of the illuminating light in response to the change of a particular objective lens, it is noted that the use of an automatically mechanism for changing the illuminating light path by moving a lens in response to a change in a particular objective lens of a microscope is known to one skilled in the art as can be seen in the microscope provided by Kappl et al. In particular, Kappl et al disclose a microscope having an illuminating system, a revolver supporting a plurality of objective lenses, and a mechanism having a motor and a detecting system for automatically adjusting the position of a lens disposed in the illuminating light path in response to the change in objective lens being used.

See column 3, lines 36 through column 4, lines 31. Regarding to the terms "video camera zoom" for the lens system in the present claim 2, it is noted that the claim has not provided any specific feature/limitation for the so-called "video camera zoom" and the operation of a zoom lens system, i.e., the movement of one lens element with respect to other lens element(s) constituting the lens system, is similar in all of the optical device. In this aspect, the zoom lens system provided by Kappl et al meets the requirement of a video camera zoom lens system. Thus,

it would have been obvious to one skilled in the art at the time the invention was made to modify the combined product as provided by Yamamoto and Hara et al by using a mechanism having a motor and a detecting system as suggested by Kappl et al for the purpose of automatically adjusting the position of a lens disposed in the illuminating light path in response to the change in objective lens being used.

In regard to the feature missing from the art of Yamamoto, Hara et al and Kappl et al in that the combined product does not state that another light source is used via a coupling-in manner. However, the use of an illuminating system having more than one light source in a microscope is clearly known to one skilled in the art as can be seen in the microscope having an illuminating system provided by Dreessen et al. In particular, in column 2 and fig. 1, they disclose an illuminating system having only one light source; however, in column 3 and fig.2, they disclose the use of a coupling-in unit for coupling two light beams from two light sources. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the illuminating system provided by Yamamoto, Hara et al and Kappl et al by using a illuminating system having two light sources and a coupling-in unit as suggested by Dreessen et al for the purpose of increasing the intensity of light or alternatively for altering the type of different light sources to be used to meet different requirements of illumination.

Response to Arguments

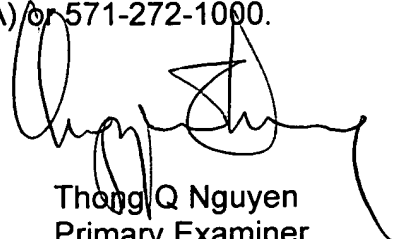
10. Applicant's arguments with respect to claims 17, 22-23, 28-29, and 32-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (571) 272-2316. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thong Q. Nguyen
Primary Examiner
Art Unit 2872